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Trends in Nontariff Barriers of Developed Countries 1966-1986

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The near doubling of nontariff barriers in the developed countries has limited the developing countries' ability to increase exports — particularly in agriculture and such labor-intensive products as textiles, clothing, and footwear — and deal effectively with their debt burdens.

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In the major developed countries, 25 percent of imports were affected by nontariff barriers in 1966. Twenty years later that number had nearly doubled, to 48 percent.

Some nontariff barriers affecting fuels were liberalized, but new trade restrictions were introduced on imports of agricultural products, textiles, clothing, ferrous metals, and nonelectric machinery. Nontariff barriers grew faster in the European Community than in the United States or Japan.

Existing GATT arrangements have lowered tariffs but have not stemmed the growth of nontariff protection. Procedures for liberalizing nontariff barriers must be established in multilateral trade negotiations like the Uruguay Round.

These barriers limit the developing countries' ability to expand their export opportunities — particularly in agriculture and such labor-intensive products as textiles, clothing, and footwear. As a result, they are unable to achieve economic growth and deal effectively with their debt burden.

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Authors' Note

To ensure intertemporal consistency, this investigation employs a concept of trade "affected" by nontariff barriers that has not been used in previous World Bank studies. The shift was required to conform with NTB surveys undertaken by other organizations in the mid-1960s. The "affected" trade concept holds that an NTB applied to one or more tariff lines within a four-digit SITC group affects all trade in the group since exporters often modify trade to halt the spread of barriers to their own (related) products. The World Bank has normally utilized a measure based on the share of imports actually covered by nontariff barriers. For reasons explained in the text these coverage ratios are lower than the "affected" trade ratios. However, the key point to note is that we apply the exact same affected trade measure in 1966 and 1986 so our standard of NTB measurement is held constant over time.

There is one other important aspect in which the present study differs from previous World Bank analyses of nontariff barriers. In computing NTB indices, we have utilized a somewhat broader group of nontariff barriers than has been previously employed by the Bank, also in order to achieve comparability with data drawn from the 1960s. This would influence the levels of NTB indices in 1966 and 1986, but should not affect our analysis of trends (i.e., changes in nontariff barrier use) since the indices have been calculated for the same group of measures. As a result of these methodological changes the empirical results presented in this study are not directly comparable with those of other World Bank investigations.

Trends in Nontariff Barriers of Developed Countries; 1966-1986

Sam Laird and Alexander Yeats*

I. Introduction

A major accomplishment of seven multilateral trade negotiations (MTNs) that began in the late 1940s was the reduction of tariffs as trade barriers. Estimates relating to the period prior to the MTNs indicate that the average tariff in developed countries was approximately 40 percent, but these duties were progressively lowered to under 8 percent through concessions made in the Geneva (1947) (1956), Annecy (1949), Torquay (1951), Dillon (1962) and Kennedy Rounds (1968). During the most recent Tokyo Round (1979) negotiations, the General Agreement on Tariffs and Trade (GATT) estimates that developed country most-favored-nation (MFN) tariffs on manufactures were lowered by about one-third, and now average 5.5 percent. A further reduction of tariffs will undoubtedly occur in the Uruguay Round negotiations which are scheduled for completion in 1990.

While tariffs have been steadily reduced, there is a growing concern that nontariff barrier protection has been assuming increased importance. 1/

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1/ See, for example, a report by the Commonwealth Secretariat (1982) which expressed major concerns about OECD countries' increased reliance on nontariff protection, particularly in sectors like agriculture, textiles and clothing, or ferrous metals that were experiencing long-term structural adjustment problems. Other, equally troubling, concerns about the spread of NTBs has been expressed in major policy documents by UNCTAD (1983) (1985), World Bank (1986) (1987), and OECD (1985) among others.

Aside from their incidence, concern has been expressed about the NTBs' changing nature, since they involve a growing tendency for non-discriminatory trading policies to be replaced by bilateral or other discriminatory arrangements. As a result, the most-favored-nation (MFN) principle, a cornerstone of the GATT, has been eroded by an increasing reliance on nontariff barriers directed at specific countries or country groups. 2/ The spread of these measures is sometimes seen as a threat to the functioning of the General Agreement.

A major problem that has been encountered in previous research and policy studies on changes in the use and importance of nontariff barriers is that much of the available empirical information has been insufficient to draw conclusions on many basic issues. 3/ To some degree, these data problems have been resolved by recent initiatives of international organizations. In this paper we utilize these new data sources in connection with similar surveys taken in the 1960s to address three basic questions concerning the longer term (1966-1986) spread of nontariff protection:

2/ The MFN principle guarantees equal treatment to a country's trading partners and requires that concessions negotiated on a bilateral basis be extended to all GATT members. It also prohibits discrimination or differential treatment of GATT members. See Evans (1971) for an early preceptive analysis of problems posed by NTBs and departures from the MFN principle. Laird and Yeats (1988) survey studies that estimated nominal equivalents or the trade losses and other economic costs of nontariff barriers.

3/ An important exception is an UNCTAD (1987) report that documents the spread of nontariff barriers over a relatively short (1981-86) time period. This study found that in 1981 19.6 per cent of all developed countries non-oil exports encountered NTBs and by 1986 this share had grown to 22.7 per cent. However, the time period covered by this investigation appears too short to identify clear-cut trends in NTB use. Nogues et. al. (1986) provide some empirical information on the growth of NTBs over 1981-1983.

- (a) has there been a major change in the importance of these restrictions as reflected in measures such as the share of trade subject to NTBs;
- (b) have there been major differences in the longer-term spread of nontariff measures in different industries or product sectors;
- (c) have there been different patterns of resort to NTB use at the national level in developed countries?

The paper also attempts to assess the implications of its findings for both GATT and the multilateral trade negotiations.

II. The Data and Methodology

In recognition of the major problems posed by nontariff barriers and the difficulties connected with the lack of information on their application and incidence, initiatives were made in the early 1980s to establish comprehensive NTB inventories for developed and developing countries. The most extensive project produced the Data Base on Trade Measures UNCTAD maintains for most developed market economy countries (full information is not available for Australia, Spain, and Portugal) and about 80 developing countries. The Data Base, generally available at the national tariff line level, identifies each NTB and briefly describes its nature, identifies the country imposing the restriction, indicates the official source of information

on the measure, and countries affected by it. 4/ The latter is particularly useful for analyzing "discriminatory" measures like bilateral quotas, "voluntary" export restraints, the Multifibre Arrangement, or prohibitions applied against specific countries. In addition, the date(s) that the restriction was first imposed, modified or removed are recorded (if the latter actions occurred) along with the value of imports (by country) in the tariff line item. For some countries like the United States the records are quite detailed and extend back to the mid-1960s. However, full country coverage has only been established in the Data Base for the 1981-86 period.

Several technical points should be noted concerning the Data Base and its applications. First, the information it contains does not provide any indication of change in the intensity of application of a measure. If, for example, the administration of import licensing requirements, or technical standards, becomes less rigorous it is not possible to incorporate this fact

4/ The entries in the Data Base have been compiled from government publications and other official sources like customs schedules and documents, GATT reports, official notifications to GATT as well as documents of other international agencies. Procedures for the periodic verification of entries with member states of UNCTAD have been established to ensure the accuracy of the Data Base. The reliance on official sources for compilation of the Data Base may cause the importance of some NTBs to be understated, especially in cases when there is a lack of "transparency," or where measures like "voluntary" export restraints (VERs) are not reported in official publications. See UNCTAD (1983) (1988) or Laird and Yeats (1988) for technical details involving construction of the Data Base. It should also be noted that problems have been encountered in tabulating Japanese NTBs due to the fact that the barriers sometimes originate in private organizations. For example, in one recent case reported in the Japanese press (see Yomiuri Shimbun, June 24, 1988, p. 2) the Japanese Federation of Cement Users Cooperatives tried to "advise" members not to use cement imported from Korea and Taiwan. Such actions are not adequately incorporated in the Data Base.

in the Data Base. ^{5/} Another problem is that the entries are usually made from national sources which utilize the tariff classification of the year the measure was introduced. This means that, if changes in tariff classification occur, the Data Base contains a mixture of entries relating to tariff numbers for different years. This problem could be resolved if concordances existed for year-to-year changes in classification systems, but these are not available for most countries. Third, very little information is contained in the Data Base on measures that might be classified as nontariff "distortions" to trade. These instruments, like export subsidies or special export rebate schemes, seek to improve the competitive position of domestic producers in foreign markets. These export incentives have been a major source of contention, particularly in agriculture (wheat, sugar, dairy products and beef).

The information contained in the Data Base was compiled in a way that a linkage can be established with several earlier efforts by UNCTAD, GATT, U.S. Department of Commerce, and the International Chamber of Commerce (ICC)

^{5/} Problems in measuring the intensity of use or trade effects made it convenient to distinguish between nontariff measures (NTMs) and nontariff barriers (NTBs). The term "measures" is wider than "barriers", since it encompasses all trade instruments which may be used as barriers, although their restrictive effects (if any) may vary between countries, or even at different points of time in a specific country. Moreover, the restrictive impact on trade may depend on the way the measure is applied (i.e., a health and sanitary restriction may be differentially enforced against foreign suppliers) rather than in the basic properties of the measure itself. As a result, studies with the Data Base generally emphasize policy analyses of nontariff measures without entering into judgements as to whether any particular measure is operating as a barrier.

Table 1

Classification Scheme for Different Forms of Nontariff Trade Measures on Imports

<u>Type I Measures</u> (Trade distorting intent for imports)	<u>Type II Measures Type</u> (Secondary trade restrictive intent)	<u>Type III Measures</u> (Spillover effects on trade)
<p><u>A. Quantitatively-operating</u></p> <ol style="list-style-type: none"> 1. Global import quotas 2. Bilateral import quotas 3. Restrictive licensing 4. Liberal licensing 5. Voluntary export restraints 6. Embargoes 7. Government procurement 8. State-trading practices 9. Domestic-content regulations <p><u>B. Operating on prices/costs</u></p> <ol style="list-style-type: none"> 1. Variable import levies 2. Advance deposit requirements 3. Anti-dumping duties 4. Countervailing charges 5. Subsidies to import competitors 6. Credit restrictions on importers 7. Tax benefits for import competitors 8. Discriminatory internal freight costs 9. International commodity agreements 10. Orderly-marketing arrangements 	<p><u>A. Quantitatively-operating</u></p> <ol style="list-style-type: none"> 1. Communications media restrictions 2. Quantitative advertising restrictions <p><u>B. Operating on prices/costs</u></p> <ol style="list-style-type: none"> 1. Packaging & labelling regulations measures 2. Health and sanitary regulations 3. Safety and industrial standards 4. Border tax adjustments 5. User taxes and excises 6. Customs clearance procedures 7. Customs classification procedures 8. Customs valuation procedures 9. Exchange restrictions 10. Disclosure regulations 11. Government-provided entrepreneurship research and development financing and related aids for import-competing industries 	<p><u>A. Quantitatively-operating</u></p> <ol style="list-style-type: none"> 1. Government manufacturing, and distribution monopolies covering products like armaments 2. Government structural and regional development policies affecting trade 3. Ad hoc government balance of payments measures 4. Variations in national tax schemes 5. Variations in national social insurance systems 6. Variations in allowable capital-depreciation methods 7. Spillovers from government-financed defense, aerospace and non-military projects 8. Scale effects induced by government procurement 9. Variation in national standards regulations and practices 10. External transport charges and government sanctioned international transport agreements 11. Port transfer costs

Source: Adapted from Walter (1972). See Laird and Yeats (1988) for details on the nontariff trade measure classification scheme currently employed by the UNCTAD Data Base on Trade Measures.

to compile nontariff barrier inventories. 6/ In this study we utilize summary statistics drawn from the GATT, UNCTAD, ICC and Commerce Department inventories by Walter (1969) (1972) to study longer-term trends in the level and pattern of nontariff measure use. Walter established a useful classification scheme for NTBs, based on the normal "intent" of these measures (see Table 1), and published NTB two-digit SITC frequency and coverage indices for years around 1966 in 18 OECD countries. Since the methodology and data sources used in preparing the 1966 data were very similar to that employed in the UNCTAD Data Base the two sources can be linked to empirically assess changes in the frequency and coverage of nontariff measures. 7/

6/ The data on nontariff barrier use in the 1960s was drawn from detailed surveys of NTBs made by a number of international and U.S. government organizations. The results of these surveys have been published in International Chamber of Commerce (1969), U.S. Office of the Special Representative for Trade Negotiations (1968), U.S. Bureau of International Commerce (1968), UNCTAD (1969) (1970) and a special GATT inventory of nontariff barriers compiled from submissions by each member country regarding the nontariff barriers facing its exporters. Given the extent of the surveys, and the amount of detail published on their findings, the information on nontariff barrier use in the 1960s appears to be as comprehensive as that compiled by UNCTAD for the 1980s. UNCTAD published detailed information on entries in its 1960s inventory. See UNCTAD (1973) (1974) for an example which illustrates how comprehensive the earlier statistics were.

7/ Several differences should be noted in the two data sources. First, Walter was unable to compile data on NTBs facing Finland and Ireland's agricultural imports, while New Zealand's import licensing requirements for industrial goods were not included in his inventory. These measures are included in the UNCTAD Data Base. Second, Walter excluded "voluntary" export restraint arrangements from his records while VERs are included in the Data Base. It should be noted, however, that VERs did not appear to be used widely in the 1960s so this should not have an important influence on the comparisons. Finally, trade restrictions for Greece were not tabulated in the 1966 inventories but are included in the UNCTAD Data Base for 1986. Both inventories have been compiled from official government or national sources. See Walter (1972, pp. 339-340) and UNCTAD (1983) for a listing. An additional problem arises with the Japanese data. In 1984, the Japanese data in the UNCTAD Data Base were substantially revised to include material published only in Japanese. This resulted in a doubling of the number of recorded NTBs. If Walter was unable to include Japanese language material, the 1966 numbers would be understated.

For empirical analysis involving NTB inventories several indices have been used. One such measure is a frequency index (F_j) showing the percentage of transactions (i.e. imports of a tariff line product from a given country) covered by some preselected group of nontariff measures,

$$(1) F_j = (\sum_i D_i N_i + N_t) \times 100$$

where N_i is transaction i , D_i is a dummy variable that takes a value of unity if one or more NTB is applied to the transaction (or zero otherwise), and N_t is the total number of transactions in the product group. The first summation in equation (1) is done over all tariff line items while the second is over all countries exporting to j . ^{8/} Given that matched trade data are available, in which individual countries of origin for shipments are identified, a second index showing the share of total imports subject to NTMs can be computed. This trade coverage measure (C_j) is defined as,

$$(2) C_j = ((\sum_i D_{i,t-m} \times V_{i,t-N}) / \sum V_{i,t-N}) \times 100$$

where $V_{i,t-N}$ represents the value of imports of item i in year $(t-N)$ and $D_{i,t-}$

^{8/} Walter utilized a different concept in his applications of equation (1). A four-digit SITC product (commodity) was considered to be "affected" by NTBs if one or more of the component tariff lines encounters a nontariff restriction. The reasoning here is that exporters of closely related products in the four-digit group are normally aware of the NTB and modify their behavior to prevent the spread of the measure. Dinopoulos and Kreinin (1988) and Messerlin (1988) measure empirically the trade contraction that occurs on the part of exporters of similar products to those facing new restrictions and show that trade in these goods experienced major contractions. However, a shortcoming of the "affected" concept is that the magnitude of the trade response may vary considerably from product to product. While recent applications of equation (1) are normally made directly with tariff line data, we have utilized Walter's "affected" commodity concept in this study so all indices would be directly comparable. Direct trade coverage indices could not be computed for the 1960s since the required tariff line level trade data were not generally available.

m is a dummy variable that takes a value of unity if an NTB is applied to the item in year m and zero otherwise. ^{9/} If N and m are zero the index is based on current trade values, otherwise it is expressed in a base year trade weights. Holding n constant and varying m will measure the effects of changes in protection with constant trade weights. In the present analysis, however, we employ current year trade weights (i.e., $m = N$) given the major structural changes that occurred in the developed countries over 1966-1986.

Before turning to the empirical results, it would be useful to consider some of the ways pressures for protection differed between the 1960s and 1980s. In the 1960s, rapid market penetration by "newly industrialized" developing countries was a problem in the textile and clothing sector, but was not yet a major factor in most other labor intensive industries. ^{10/} Pressures for protection in the 1970s and 1980s would be heightened by a rapid

^{9/} This measure suffers from the familiar problem of any "own" trade weighted index in that products facing very restrictive NTBs will enter the calculation with zero or low weights. There have been attempts to reduce this source of bias in aggregate data through the use of "world" trade weights, but factors such as demand differences or a high degree of sectorial correlation in OECD protection make this approach suspect. Also, equation (2) tells nothing about the "restrictiveness" of NTBs, but merely how much actual trade encounters these measures. While recent applications of equation (2) are based on tariff line level records of NTBs and trade data, we have utilized Walter's concept of "affected" products for the empirical analysis in this study. That is, the coverage ratios in this report show the value of trade in "affected" four-digit SITC products as a percentage of total imports.

^{10/} It could be argued that conditions for a trade liberalization were more favorable in the 1960s than they are at present. Many restraints were starting to be lifted in the late 1950s and early 1960s as world economic growth and low rates of unemployment lent a sense of prosperity to the scene. The Kennedy Round, concluded in 1966, was the most extensive multilateral trade negotiation since the inception of GATT and had achieved a major reduction in tariffs. Exchange rates were fixed and currencies were convertible. Countries like the United Kingdom had to resort to import surcharges for balance of payment (BOP) reasons but by and large the widespread use of post-war nontariff barriers for BOP reasons and exchange controls had largely ceased in the industrial countries.

inflow of imports from developing countries in these sensitive industries, as well as by a series of oil price shocks starting in 1973 that caused extensive structural adjustment problems. In the 1970s and 1980s, new forms of protection that had not been employed in the 1960s became an increasingly important problem for the international community. While "negotiated" trade barriers were used in the Long-Term Textile Agreement (LTA), restrictions like "voluntary" export restraints (VERs) expanded their product coverage as these measures were extended to sectors like consumer electronics, footwear, automobiles, metals and some chemical products. In 1974, the Multifiber Arrangement (and its subsequent revisions) greatly expanded the product and country coverage of the LTA restrictions. In the iron and steel sector, the United States and United Kingdom had some nontariff restrictions in the 1960s (mainly licensing arrangements and some minor quotas), but the development of substantial excess capacity and other structural adjustment problems resulted in a major expansion of nontariff barriers like VERs and the United States trigger pricing mechanism in the 1970s and import quotas in the 1980s.

In retrospect, European agriculture was much less restricted in the 1960s than at present; the Common Agricultural Policy (CAP) was operational in only six countries and covered fewer products. Extension of the CAP to the United Kingdom and Denmark as these countries joined the EC caused a major increase in agricultural protection in these markets. New forms of protection also were a growing problem in agriculture over 1966-1986 as countries like the United States and Japan adopted variable import levies to curb imports of major agricultural products like sugar and meat (Japan). Many industrial

countries also greatly expanded their use of antidumping and countervailing duties (and investigations) to curb both agricultural and manufactured imports. In short, these general developments suggest that important increases in protection occurred over 1966-1986. This paper will attempt to establish if this was in fact the case and, if so, to quantify the magnitude of the change.

III. Empirical Results

For an initial assessment of trends in the use of nontariff barriers, 1986 NTB frequency indices were derived for the major developed countries. These statistics, which show the percentage of four-digit SITC products affected by nontariff barriers (see equation (1)), were computed for all commodities as well as for major product groups (e.g., foodstuffs, agricultural raw materials, ores and metals, fuels and manufactures). Next, similar indices were computed for 1966. ^{11/} Since the 1966 and 1986 statistics were derived using a common list of nontariff barriers (i.e., all Type I and Type II measures shown in Table 1) they can be used to assess changes in the

^{11/} The 1966 NTB frequency indices were derived from Walter (1972, Table 2 on pages 341-2). Since these data were published in terms of two-digit SITC products they were aggregated to the major groups shown in Table 2 using a two stage procedure. First, the number of affected four-digit SITC products (N_{4i}^*) in two-digit group i was computed using,

$$(3) \quad N_{4i}^* = f_i \times N_{4i}$$

where f_i is Walter's published two-digit frequency index and N_{4i} is the number of four-digit SITC groups in the two-digit class. Next, the affected and total four-digit products (N_{4i}^* and N_{4i}) were summed to the levels shown in Table 2 and their ratios used to estimate the aggregate frequency indices. The matched 1986 indices were directly computed at these levels using the UNCTAD Data Base on Trade Measures.

Table 2

Analysis of Changes in Developed Countries NTB Frequency Indices for Major Product Groups

(1966 Index expressed in per cent, 1966-86 change in percentage points)

Country	All foods (SITC 0+1+22+4)		Ag. Raw Materials (SITC 2 less 22, 27, 28)		Fuels (SITC 3)		Ores & Metals (SITC 27, 28 and 68)		Manufactures (SITC 5 to 8 less 68)		All Commodities (SITC 0 to 8)	
	1966 Index	1966-86 chg.	1966 Index	1966-86 chg.	1966 Index	1966-86 chg.	1966 Index	1966-86 chg.	1966 Index	1966-86 chg.	1966 Index	1966-86 chg.
All Countries	36	53	2	49	13	27	2	23	5	46	17 1/	37
European Community	38	58	2	49	13	18	1	26	2	54	15 2/	43
Belgium-Luxembourg	40	56	3	46	38	33	2	20	3	55	19	42
Denmark	45	51	3	40	6	-6	0	13	1	51	11	43
France	46	52	6	49	25	73	0	38	3	61	17	49
Germany, Fed. Rep.	46	50	3	47	6	-2	0	31	4	54	16	44
Greece 3/	na	(94)	na	(36)	na	(10)	na	(18)	na	(48)	na	(49) 3/
Ireland	na	(91) 3/	0	33	0	0	0	8	1	44	na	(47) 3/
Italy	39	59	0	53	0	0	4	38	2	60	13	49
Netherlands	33	61	0	58	0	72	0	27	3	53	19	40
United Kingdom	19	75	2	46	31	-31	0	17	3	44	10	42
Finland	na	(66) 3/	0	33	19	59	4	4	2	39	na	(41) 3/
Japan	51	48	2	67	25	66	10	11	11	30	34	16
Norway	36	60	2	33	0	0	0	6	2	23	14	16
Switzerland	29	60	2	69	0	68	2	14	2	53	12	30
United States	17	40	5	41	13	-3	0	32	27	52	27	30

1/ Finland, Greece and Ireland are excluded from the totals since complete information on these countries trade barriers was not available in 1966.

2/ Ireland and Greece are excluded from the EEC totals in 1966 since complete information on these country's trade barriers was not available.

As such, the group of countries used in computing 1986 NTB indices differs from that employed for the 1966 data. Exclusion of Greece and Ireland from the 1966 computations should not have a major influence on the results since these countries only account for about two per cent of EEC imports.

3/ Since 1966 data were not available the figures in parentheses show the actual share of trade affected by nontariff barriers in 1986.

TABLE NOTE: As an alternative to the "affected" trade concept, recent investigations have utilized equations (1) and (2) in connection with tariff line trade and NTB information to derive actual frequency and trade coverage indices. In addition, these indices have often been computed using the more limited group of Type I measures listed in Table 1. This alternative procedure yields the following results (in parentheses) when tariff line level data were employed to compute hard core (Type I) NTB frequency indices for 1986: Belgium-Luxembourg (8.6); Denmark (9.2); France (14.1); Germany, Fed. Rep. (12.5); Greece (10.6); Ireland (6.5); Italy (18.3); Netherlands (11.1); United Kingdom (8.1); Finland (3.4); Japan (12.5); Norway (17.4); Switzerland (9.7); United States (6.5). Corresponding 1986 frequency indices based on "affected" trade by all Type I and II NTBs can be derived from Table 2 by noting they equal the reported 1966 index plus the 1966-86 change in the measure.

use of nontariff barriers in developed countries. ^{12/} Table 2 shows the 1966-86 changes in these indices as well as the actual value of the 1966 frequency index. With the exception of fuel imports, Table 2 shows that there have been major increases in the NTB frequency ratios over the 1966 to 1986 period. For all developed countries approximately 17 per cent of all four-digit SITC products were affected by NTBs in 1966 and this ratio increased 37 percentage points (to an overall value of 54 per cent) by 1986. Food products recorded the highest overall 1966-86 increase in the frequency index (53 percentage) while the table shows that the percentage of affected products in this group rose by 40 points or more in Italy, Netherlands, Norway, United Kingdom, Switzerland and the United States. ^{13/} Analysis of the underlying trade statistics for the European Communities countries shows that the extension of variable import levies to additional products was a major factor accounting for the rise in the EC coverage ratios for foodstuffs (over 98 per

^{12/} In computing NTB indices, we have utilized a broader group of measures than has been previously employed by the World Bank for analyses of trade restrictions. Specifically, we have included several measures like health and sanitary regulations and safety and industrial standards in order to achieve comparability with data drawn for the 1960s. This would influence the levels of NTB indices in 1966 and 1986, but should not affect our analysis of trends in nontariff barrier use since the indices have been calculated for the same group of measures. As a result of this methodological change, the empirical results presented in this study are not directly comparable with those of other World Bank investigations.

^{13/} Over the 1966-86 period the United States extended agricultural trade barriers to a number of important product groups. In 1986, approximately 63 per cent of the tariff line items in SITC 02 (Dairy Products and Eggs) were covered by quotas, while seasonal tariffs and tariff quotas were also applied extensively in this sector. Quotas were applied to U.S. sugar imports, while a sliding scale variable import charge was also introduced for these products. Quotas are now applied extensively to United States imports of oil seeds and oil nuts (SITC 22) where over 33 per cent of the tariff line products are covered, while import authorization requirements, special import taxes, tariff quotas and seasonal tariffs are now applied in several important sectors (i.e., live animals, fish and preparations, fruits and vegetables and beverages).

cent of tariff line products in cereal and dairy products are covered by these measures, while 90 per cent of sugar and honey imports encounter levies). Minimum import price requirements apply to 50 per cent or more of EC fish, beverage, and fruit and vegetable imports while quotas are applied extensively to the latter products, as well as to live animals and meat products.

While the 1966-86 increase in the frequency ratios for agricultural raw materials are often among the largest in the table, an analysis of the underlying statistics shows the increase is largely concentrated in one or two sectors, primarily textile fibres (SITC 26) and crude animal and vegetable materials (SITC 29). The extension of the MFA and other quotas has been an important factor in increasing the frequency ratios for the former while quotas and import licensing requirements have been introduced throughout the SITC 29 group in Japan the United States and the EC. 14/

Overall, the percentage of four-digit SITC manufactured products affected by nontariff barriers rose from 5 per cent in 1966 to 51 per cent in 1986. Table 3 indicates the important role that sectors like textiles and clothing, ferrous metals, machinery and transport equipment played in this increase. In the mid-1960s about 7 per cent of the industrial countries textile and clothing imports encountered nontariff barriers, while in 1986

14/ Prior to 1973 MFA restrictions applied solely to cotton fibres, but in 1974 they were extended to wool and man-made fibres. Under the MFA IV the restrictions were further extended to other vegetable fibres like jute, sisal and coir. In SITC 29, Japan applies formal quotas to a number of products like natural gums and resins; vegetable saps and extracts; and various plant seeds while import licensing is used for a wide variety of products ranging from natural sponges to animal bones and horns. Similarly, the EC has import licensing or surveillance requirements for most of the seed and bulb products falling in this group as well as for vegetable saps, extracts and resins.

Table 3

Analysis of Changes in Developed Countries NTB Frequency Indices for Major Groups of Manufactured Products

(1966 index expressed in per cent, 1966-86 change in percentage points)

Country	Textiles and Clothing (SITC 65-84)		Ferrous Metals (SITC 67)		Chemicals (SITC 5)		Nonelectric Machinery (SITC 71)		Electric Machinery (SITC 72)		Transport Equipment (SITC 73)	
	1966 index	1966-86 chg.	1966 index	1966-86 chg.	1966 index	1966-86 chg.	1966 index	1966-86 chg.	1966 index	1966-86 chg.	1966 index	1966-86 chg.
All Countries	7	82	6	77	6	52	3	26	8	57	10	55
European Community	5	90	3	87	3	54	0	35	1	59	7	43
Belgium-Luxembourg	9	86	0	94	43	9	0	42	0	54	8	31
Denmark	2	91	0	90	0	41	0	27	0	55	0	43
France	0	94	0	95	4	64	0	38	6	88	8	71
Germany, Fed. Rep.	18	78	0	96	2	56	0	43	0	50	8	34
Greece 1/	na	(93)	na	(86)	na	(39)	na	(46)	na	(52)	na	(47)
Ireland	0	93	0	53	1	38	0	18	0	54	6	33
Italy	2	94	0	93	1	76	0	44	0	80	20	55
Netherlands	7	89	0	88	7	52	0	26	0	51	4	36
United Kingdom	5	91	26	61	0	50	0	26	0	48	4	28
Finland	0	83	0	65	4	15	0	26	0	30	8	-8
Japan	9	34	3	-3	7	93	30	-22	29	-14	16	-12
Norway	14	58	0	0	2	26	0	0	0	0	8	19
Switzerland	9	55	0	4	0	89	0	11	0	0	8	46
United States	20	79	74	25	37	-1	8	29	78	9	24	64

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1/ Since 1966 data were not available the figures in parentheses show the actual values of the frequency index for 1986.

TABLE NOTE: Using the procedures outlined in Table 2 (see Table note) the following statistics were derived for "hard core" NTB frequency indices for each two-digit SITC group listed above:

(i) Textile yarn and fabric: Belgium-Luxembourg (24,8); Denmark (24,6); France (31,2); Germany (36,6); Greece (37,4); Ireland (23,4); Italy (34,9); Netherlands (28,5); U.K. (29,7); Finland (0,7); Japan (39,3); Norway (6,8); Switzerland (0,0); U.S. (26,4).

(ii) Clothing: Belgium-Luxembourg (32,4); Denmark (37,0); France (65,5); Germany (43,5); Greece (26,4); Ireland (30,0); Italy (58,9); Netherlands (44,6); U.K. (38,3); Finland (7,0); Japan (4,2); Norway (73,8); Switzerland (6,9); U.S. (30,3).

(iii) Ferrous metals: Belgium-Luxembourg (20,6); Denmark (20,9); France (18,6); Germany (23,3); Greece (33,2); Ireland (12,4); Italy (72,9); Netherlands (19,3); U.K. (20,6); Finland (0,0); Japan (0,0); Norway (0,0); Switzerland (1,9); U.S. (53,8).

(iv) Nonelectrical machinery: Belgium-Luxembourg (0,2); Denmark (0,3); France (2,7); Germany (0,2); Greece (7,6); Ireland (0,1); Netherlands (0,2); U.K. (0,1); Finland (0,0); Japan (0,7); Norway (0,0); Switzerland (4,2); U.S. (0,0).

(v) Electric machinery: Belgium-Luxembourg (0,8); Denmark (0,5); France (8,8); Germany (0,2); Greece (10,4); Ireland (10,5); Italy (7,4); Netherlands (0,8); U.K. (0,7); Finland (0,0); Japan (0,3); Norway (0,0); Switzerland (0,0); U.S. (0,1).

(vi) Transport equipment: Belgium-Luxembourg (1,5); Denmark (1,1); France (6,3); Germany (0,7); Greece (13,1); Ireland (2,3); Italy (17,8); Netherlands (1,7); U.K. (0,4); Finland (0,0); Japan (3,4); Norway (0,2); Switzerland (47,8); U.S. (2,4).

this ratio rose to about 89 per cent (an 82 point increase) due to restrictions negotiated within (as well as outside) the Long-Term Textile Arrangement (LTA) and Multifibre Arrangement (MFA). In the mid-1960s trade in ferrous metals was relatively free of non-tariff barriers, but by 1986 new restrictions (primarily "voluntary" export restraints, although reference price measures and antidumping duties are also applied to imports) had spread to the extent that 83 per cent of the products in this sector were affected by NTBs. Special import authorizations, a variety of different measures like licensing or authorizations for surveillance or special EC surveillance requirements, account for most of the dramatic 52 point increase in the chemical frequency ratios (particularly in SITC 55 - manufactured fertilizers and SITC 54 - medicinal products), while "voluntary" export restraints (primarily against Japan) were an important element in the more than five-fold increase in the overall frequency ratio for transport equipment. ^{15/}

Table 4 employs the "affected" trade coverage measure (equation (2)) for major product groups to evaluate the 1966-86 spread of nontariff barriers in value terms, while Table 5 provides similar information for selected groups of manufactured products. Overall, the share of developed country imports affected by NTBs nearly doubled over the 20 year period (it rose 23 points from a 1966 ratio of 25 per cent) with the increases generally being highest

^{15/} A point to note is that large differences can arise between indices of "affected" trade and actual NTB coverage ratios when discriminatory measures like MFA quotas, "voluntary" export restraints, or antidumping duties are applied. Although these restrictions may be directed against a single exporter in a tariff line category or four-digit SITC group and, as a result the actual trade coverage may be relatively small, relatively large values of trade can be affected if other exporters of the product react by altering their trade. Messerlin (1988) has documented the "chilling" affect of discriminatory NTBs like antidumping duties on exporters within affected product groups.

Table 4

Analysis of Changes in Developed Countries NTB "Affected" Trade Indices for Major Product Groups

(1966 index expressed in per cent, 1966-86 change in percentage points)

Country	All foods (SITC 0+1+22+4)		Ag. Raw Materials (SITC 2 less 22, 27, 28)		Fuels (SITC 3)		Ores & Metals (SITC 27, 28 and 68)		Manufactures (SITC 5 to 8 less 68)		All Commodities (SITC 0 to 8)	
	1966 index	1966-86 chg.	1966 index	1966-86 chg.	1966 index	1966-86 chg.	1966 index	1966-86 chg.	1966 index	1966-86 chg.	1966 index	1966-86 chg.
All Countries	56 1/	36	4	37	27	0	1	28	19	39	25	23
European Community	61 2/	39	3	24	11	26.2	0	40	10	46	21	33
Belgium-Luxembourg	68	31	1	20	96	-6	0	28	21	48	31	43
Denmark	35	65	2	5	9	0	0	37	1	45	5	32
France	56	43	4	33	22	78	0	58	6	55	16	66
Germany, Fed. Rep.	71	28	9	11	1	-7	0	47	12	47	24	17
Greece 4/	na	(82)	na	(10)	na	(10)	na	(24)	na	(47)	na	(26)
Ireland	na	(98) 4/	0	6	0	0	0	15	2	39	2 3/	37
Italy	72	27	0	53	0	0	1	35	9	57	27	3
Netherlands	55	43	0	21	0	93	0	71	8	50	31	48
United Kingdom	42	54	0	0	0	0	0	16	9	35	16	22
Finland	na	(70) 4/	0	55	67	28	4	-1	8	20	15 3/	36
Japan	73	26	0	59	33	-5	2	29	48	2	31	12
Norway	43	52	3	13	0	0	0	15	38	-16	31	-8
Switzerland	53	37	4	51	0	99	0	9	15	24	19	31
United States	32	42	14	31	92	-92	0	16	39	32	36	9

1/ Finland, Greece and Ireland are excluded from the totals since complete information on these countries agricultural trade barriers was not available in 1966.

2/ Ireland and Greece are excluded from the EEC totals since complete information on these countries agricultural trade barriers was not available in 1966.

3/ Excludes barriers on food imports.

4/ Since the 1966 data were not available, the figures in parentheses show the actual share of trade affected by nontariff measures in 1986.

TABLE NOTE Due to the difference in the two concepts (see the note to Table 2) actual NTB trade coverage indices are lower than the above measures which are based on the value of "affected" four-digit SITC trade. Using tariff line level trade and (hard cored) NTB records the following indices (in parentheses) were derived for the actual coverage of imports by 1986 nontariff barriers: Belgium-Luxembourg (14.3); Denmark (7.9); France (18.6); Germany (15.4); Greece (20.1); Ireland (9.7); Italy (18.2); Netherlands (21.4); U.K. (12.8); Finland (8.0); Japan (24.3); Norway (14.2); Switzerland (19.6); U.S. (17.3). Corresponding 1986 "affected" trade indices for all type I and II measures can be derived from Table 4 by noting they are equal to the reported 1966 index plus the 1966-86 change in this measure.

Table 5

Analysis of Change in Developed Countries NTB "Affected" Trade Indices for Major Groups of Manufactured Products

(1966 index expressed in per cent, 1966-86 change in percentage points)

Country	Textiles and Clothing (SITC 65+64)		Ferrous Metals (SITC 67)		Chemicals (SITC 5)		Nonelectric Machinery (SITC 71)		Electric Machinery (SITC 72)		Transport Equipment (SITC 73)	
	1966 index	1966-86 chg.	1966 index	1966-86 chg.	1966 index	1966-86 chg.	1966 index	1966-86 chg.	1966 index	1966-86 chg.	1966 index	1966-86 chg.
All Countries	30	59	24	59	23	35	5	23	20	40	56	9
European Community	20	82	8	86	13	42	1	28	0	67	39	-8
Belgium-Luxembourg	50	48	0	99	31	16	0	40	0	64	75	-25
Denmark	9	85	0	96	0	37	0	20	0	67	0	26
France	0	94	0	99	12	36	3	25	15	80	59	25
Germany, Fed. Rep.	22	74	0	99	3	44	0	37	3	60	70	-31
Greece 1/	na	(97)	na	(98)	na	(31)	na	(49)	na	(65)	na	(34)
Ireland	0	97	0	67	3	18	0	8	2	60	10	57
Italy	15	80	0	95	11	72	0	35	0	86	65	-12
Netherlands	14	82	0	97	43	17	0	19	0	70	12	37
United Kingdom	24	71	80	17	0	54	0	22	0	60	39	-12
Finland	0	83	0	61	6	16	0	20	0	39	39	-39
Japan	39	4	0	0	60	40	72	-53	58	-39	65	-27
Norway	20	55	0	0	10	10	0	0	0	0	88	-50
Switzerland	58	22	0	1	0	86	0	11	0	0	68	17
United States	55	43	73	26	55	-19	1	36	72	15	73	14

1/ Since 1986 data were not available the figures in parentheses show the actual share of trade affected by nontariff measures in 1986.

TABLE NOTE. Using the procedures outline in Table 2 (see table note) the following statistics show "hard core" NTB trade coverage ratios for each of the two digit SITC groups listed above.

(i) Textile yarn and fabric: Belgium-Luxembourg (76.9), Denmark (31.6), France (19.3), Germany (36.9), Greece (41.8), Ireland (20.5), Italy (41.3), Netherlands (41.4), U.K. (29.2), Finland (1.6), Japan (0.0), Norway (6.1), Switzerland (0.0), U.S. (34.5).

(ii) Clothing: Belgium-Luxembourg (48.1), Denmark (51.0), France (74.8), Germany (67.7), Greece (39.4), Ireland (37.5), Italy (64.1), Netherlands (62.6), U.K. (63.6), Finland (12.1), Japan (11.3), Norway (86.5), Switzerland (18.6), U.S. (76.4).

(iii) Ferrous metals: Belgium-Luxembourg (33.6), Denmark (59.4), France (31.4), Germany (48.6), Greece (65.3), Ireland (49.8), Italy (60.6), Netherlands (39.9), U.K. (39.2), Finland (0.0), Japan (0.0), Norway (0.0), Switzerland (1.0), U.S. (76.3).

(iv) Nonelectric machinery: Belgium-Luxembourg (3.9), Denmark (1.3), France (12.7), Germany (11.5), Greece (10.3), Ireland (0.5), Italy (14.1), Netherlands (1.1), U.K. (1.3), Finland (0.0), Japan (4.4), Norway (0.0), Switzerland (4.7), U.S. (0.0).

(v) Electric machinery: Belgium-Luxembourg (19.2), Denmark (5.2), France (24.2), Germany (8.6), Greece (19.5), Ireland (1.1), Italy (9.0), Netherlands (4.8), U.K. (9.1), Finland (0.0), Japan (0.3), Norway (0.0), Switzerland (0.0), U.S. (11.4).

(vi) Transport equipment: Belgium-Luxembourg (40.8), Denmark (51.0), France (32.7), Germany (25.8), Greece (24.8), Ireland (60.0), Italy (6.9), Netherlands (33.5), U.K. (15.4), Finland (0.0), Japan (17.3), Norway (86.5), Switzerland (84.7), U.S. (41.1).

for the EC countries, where an average 33 percentage point rise in this index occurred. The affected trade ratio for fuels (SITC 3) remained stable for the period, although there is considerable variation in individual country experience. In the early 1980s the United States dropped its import authorization requirements for fuels; this accounts for the dramatic 92 point drop in its ratio. In contrast, France adopted licensing requirements for energy imports that caused its affected trade ratio for fuels to rise by 78 points.

In general, the movements in the affected trade ratios follow those of the frequency indices (reported in Tables 2 and 3) although there are some important differences. The aggregate affected trade ratio for Norway declined 8 points due to a removal of some quantitative restrictions for manufactured products (see the ratios for transport equipment in Table 5), while the ratio for Italian imports rose far less than the corresponding frequency index. The primary reason for this divergence was a major increase in the share of fuel imports in Italy's total trade (from about 18 per cent of Italian imports in 1966 to about 55 per cent in 1986) and the fact that energy imports do not encounter nontariff barriers. Aside from Italy and Norway, the affected trade ratios for the U.S. and Japan suggest that NTBs have spread less rapidly in these countries than in the other industrial markets.

As was the case with the frequency indices (Table 3), the affected trade ratios in Table 5 document the dramatic increase in the importance of NTBs in the textiles and clothing, ferrous metals, and machinery sectors. For the former, affected trade ratios rose by 59 points and stood at close to 90

per cent in 1986. ^{16/} Overall, the share of ferrous metal imports affected by NTBs also rose by about 59 points although no restrictions are applied to these imports in Japan and Norway, and only minimal barriers are encountered in Switzerland (one per cent of trade is affected). ^{17/}

In order to evaluate the overall implications of the 1966 and 1986 statistics on trade affected by NTBs, Table 6 shows aggregate NTB ratios for individual countries as well as the values of trade involved. To ensure comparability, these 1966 and 1986 statistics were computed using a common group of nontariff restrictions, namely, all Type I and II NTBs listed in Table 1. For comparison, two (1986) measures of trade coverage are also shown. The first coverage ratio employs Type I (hard core) measures in its calculation while the second is based on all Type I and II measures.

For all developed countries combined the share of imports affected by NTBs rose from about 25 per cent in 1966 to 48 per cent in 1986. In value

^{16/} Under the terms of MFA some (or all) developing country textile and clothing exports to developed countries are restricted by quotas, as are some exports from Japan. The statistics in Table 5 assume that all products from all exporters in four-digit SITC groups within which MFA and other restrictions are applied are "affected" by these measures. This example illustrates a potential difficulty with the "affected" trade concept in the case of discriminatory barriers since the MFA tends to raise rather than reduce imports from developed countries. Yet these exports are also included in the affected trade base. Due to the nature of the concept, measures of "affected" trade are always larger or, at a minimum, equal to measures of actual trade covered.

^{17/} Laird and Yeats (1988) conducted an analysis of changing patterns of NTB use in developed countries over the 1981-86 period and found that a major shift occurred in the use of VERs on import volumes as opposed to other forms of nontariff barriers. Specifically, the share of imports covered by (non-MFA) VERs almost doubled during this interval (it rose from 2.3 to 4.4 per cent in the EEC and from 6.9 to 11.3 per cent in the United States. The share of trade affected by other types of NTBs (notably antidumping and countervailing duties, voluntary export price restraints, tariff quotas and, in the U.S. variable levies) increased by a greater percentage than VERs, but much less in value terms.

Table 6

Analysis of the Change in Developed Country Imports Facing Nontariff Barriers: 1966 to 1986

<u>Importer</u>	<u>Imports Covered by 1986 Nontariff Barriers</u>				<u>Imports Affected by 1966 and 1986 Type I and II NTBs ^{1/}</u>			
	<u>Type I NTBs ^{1/}</u>		<u>Type I + II NTBs ^{1/}</u>		<u>1966 NTBs</u>		<u>1986 NTBs</u>	
	<u>\$</u>	<u>Value of</u>	<u>\$</u>	<u>Value of</u>	<u>\$</u>	<u>Value of</u>	<u>\$</u>	<u>Value of</u>
	<u>of imports</u>	<u>imports</u>	<u>of imports</u>	<u>imports</u>	<u>of imports</u>	<u>imports</u>	<u>of imports</u>	<u>imports</u>
	<u>covered</u>	<u>covered</u>	<u>covered</u>	<u>covered</u>	<u>affected</u>	<u>affected</u>	<u>affected</u>	<u>affected</u>
		(\$ million)		(\$ million)		(\$ million)		(\$ million)
All Countries	15.9	118,740	27.2	204,716	25.3	29,510 ^{2/}	48.0	355,532
European Communities	18.6	60,797	29.8	97,173	20.8	14,695	54.1	169,153
Belgium-Luxembourg	10.4	2,304	32.6	7,222	30.5	2,185	74.5	16,504
Denmark	6.6	599	18.6	1,687	4.6	174	37.2	3,374
France	51.5	31,425	62.5	38,137	16.1	1,995	81.6	49,793
Germany, Fed. Rep.	12.1	10,074	21.0	17,484	24.1	3,996	40.9	34,052
Greece	11.7	515	15.2	670	na	na	25.8	1,136
Ireland	9.0	230	20.4	523	1.8	15	39.5	1,012
Italy	9.2	4,690	14.5	7,392	26.9	2,439	30.1	15,347
Netherlands	13.2	4,090	33.3	10,319	31.1	1,135	78.6	24,356
United Kingdom	11.1	6,870	22.2	13,739	15.8	2,756	38.1	23,579
Finland	32.4	4,469	43.2	6,037	15.2	227	51.3	7,076
Japan	14.4	19,043	36.9	48,798	31.4	3,648	43.5	57,525
Norway	12.5	1,908	12.5	1,909	31.0	778	23.2	3,543
Switzerland	17.4	5,267	40.7	12,320	19.2	783	50.1	15,166
United States	11.9	27,256	16.8	38,479	36.4	9,379	45.0	103,069

^{1/} See Table 1 for a listing of Type I and Type II nontariff barriers.

^{2/} We have employed World Bank unit value deflators to express the 1966 affected trade values in terms of 1986 prices. The results suggest that the \$29.5 billion 1966 estimate is equivalent to about \$100.4 billion in 1986 prices. The corresponding figures for the EC, Japan and United States are: \$50, \$12.6, and \$37.8 billion.

TABLE NOTE: The actual 1986 NTB trade coverage ratios for total imports of the industrial countries listed above have been decomposed into trade coverage ratios for some of the more important types of nontariff barriers. These ratios (shown in parentheses) are as follows: tariff quotas (1.2); variable import levies (2.4); antidumping and countervailing duties (1.2); reference import prices (0.5); minimum import prices (1.3); "voluntary" price restraints (0.5); special import taxes (0.7); import authorization requirements (4.1); non-automatic import licensing (4.1); quantitative restrictions other than MFA or textile quotas (4.7); "voluntary" export restraints on volumes (5.3); MFA restrictions (2.2); other quantitative textile restrictions (0.5). Trade coverage ratios for other Type II NTBs were not calculated. See Table 6 and 7 for a similar decomposition of U.S. and Japan's trade barriers.

terms this means that approximately \$355.5 billion of these countries imports were affected by one or more kinds of Type I or II nontariff barriers in 1986 as opposed to about \$29.5 billion of trade in 1966 (\$100.3 billion measured in 1986 prices). ^{18/} Table 6 also shows that there are major differences in the share of imports affected by NTBs in individual countries. In France and Netherlands, for example, approximately 80 per cent of all imports are affected by nontariff barriers, a figure which is considerably higher than the 54 per cent average for the European Community. (However, if energy imports are excluded both country's coverage ratios drop to about average). In contrast, about 45 per cent of Japanese and United States 1986 imports were affected by Type I or Type II NTBs (a total of over \$160 billion in trade is involved) while in Norway the affected trade share reaches a low of 23 per cent. Overall, the figures reported in Table 6 justify the concerns many economists have expressed about the spread of NTBs and their influence on the international trading system.

Table 7 examines differences in the 1966-86 spread of U.S. nontariff barriers across sectors while Table 8 presents similar information for Japan. Both tables document the fact that the overall increase in the share of imports affected by NTBs (approximately 45 per cent of each country's total imports were affected in 1986) was very uneven over the product sectors. For example, U.S. imports of almost all ferrous metal products were affected by

^{18/} As expected, the actual trade coverage ratios shown in Tables 6 through 8 are considerably lower than the affected trade ratios, with slightly more than 27 per cent of total imports or \$204.7 billion actually subject to type I and II restrictions (about 16 per cent or \$118.7 billion actually face hard core type I barriers). Since the use of discriminatory nontariff barriers like "voluntary" export restraints, antidumping duties or MFA restrictions was far less extensive in the earlier period the difference between trade "coverage" and trade "affected" measures would probably have been narrower in 1966.

Table 7

Analysis of the Structural Change in United States Nontariff Barrier Protection: 1966-1986

Product group ^{1/}	Imports Covered by 1986 Nontariff Barriers				Imports Affected by 1966 and 1986 Type I and II NTBs ^{2/}			
	Type I NTBs ^{2/}		Type I + II NTBs ^{2/}		1966 NTBs		1986 NTBs	
	\$	Value of	\$	Value of	\$	Value of	\$	Value of
	of imports covered	imports covered (\$ million)	of imports covered	imports covered (\$ million)	of imports affected	imports affected (\$ million)	of import affected	imports affected (\$ million)
All Products	11.9	27,254	16.8	38,373	36.4	9,379 ^{3/}	45.0	103,105
of which:								
Foodstuffs	14.7	2,517	36.7	6,284	32.3	1,577	73.9	12,655
Agricultural Raw Materials	1.6	92	32.4	1,865	13.8	230	45.1	2,596
Fuels	0.0	0	0.0	0	91.8	2,088	0.1	75
Ores and Metals	2.6	266	6.4	656	0.0	0	15.7	1,609
Manufactures	20.2	24,379	24.5	29,568	38.7	5,484	71.4	86,170
of which:								
Iron and Steel	76.1	7,589	85.0	8,477	73.0	1,002	99.4	9,913
Chemicals	0.0	0	2.9	254	55.0	532	36.4	3,194
Electrical Machinery	1.4	176	10.9	1,370	72.0	821	86.7	10,897
Nonelectrical Machinery	0.0	0	2.9	375	1.0	19	37.2	4,805
Transport Equipment	41.1	9,702	47.3	11,166	73.0	2,017	87.5	20,656
Textiles and Clothing	66.8	6,297	68.3	6,439	54.7	800	98.5	9,286

^{1/} See Tables 2 and 3 for the SITC groups included in each product category.

^{2/} See Table 1 for a listing of Type I and Type II nontariff barriers.

^{3/} This is equivalent to a value of \$32.8 billion measured in 1986 prices.

TABLE NOTE: The actual 1986 U.S. NTB trade coverage ratios for total imports have been decomposed into trade coverage ratios for some of the more important types of nontariff barriers. These ratios (shown in parentheses) are as follows: tariff quotas (1.2); variable import levies (1.4); antidumping and countervailing duties (3.5); reference import prices (0.0); minimum import prices (0.0); "voluntary" price restraints (0.2); special import taxes (1.0); import authorization requirements (1.0); non-automatic import licensing (0.0); quantitative restrictions other than MFA or textile quotas (2.0); "voluntary" export restraints on volumes (11.3); MFA restrictions (3.2); other quantitative textile restrictions (0.9). Trade coverage ratios for other Type II NTBs were not calculated.

Table 8

Analysis of the Structural Change in Japanese Nontariff Barrier Protection: 1966-1986

Product group ^{1/}	Imports Covered by 1986 Nontariff Barriers				Imports Affected by 1966 and 1986 Type I and II NTBs ^{2/}			
	Type I NTBs ^{2/}		Type I + II NTBs ^{2/}		1966 NTBs		1986 NTBs	
	%	Value of	%	Value of	%	Value of	%	Value of
	of imports covered	imports covered (\$ million)	of imports covered	imports covered (\$ million)	of imports affected	imports affected (\$ million)	of imports affected	imports affected (\$ million)
All Products	14.4	18,946	36.9	48,857	31.4	3,648 ^{3/}	43.5	57,535
of which:								
Foodstuffs	53.6	8,639	98.9	15,940	72.7	1,652	99.5	16,037
Agricultural Raw Materials	4.2	394	57.4	5,380	0.0	0	58.8	5,511
Fuels	7.6	5,485	21.4	15,447	33.4	748	27.9	20,139
Ores and Metals	3.5	263	28.8	2,165	2.2	52	31.3	2,353
Manufactures	15.4	4,165	36.7	9,925	47.9	1,196	49.9	13,495
of which:								
Iron and Steel	0.0	0	0.0	0	0.0	0	0.0	0
Chemicals	28.5	1,744	95.2	5,826	60.4	369	99.8	6,107
Electrical Machinery	0.3	87	2.6	75	58.0	111	19.3	561
Nonelectrical Machinery	4.4	169	4.4	169	72.0	446	18.9	658
Transport Equipment	17.3	472	17.3	472	65.0	104	37.7	1,028
Textiles and Clothing	31.9	1,087	32.1	1,094	38.9	46	43.1	1,469

^{1/} See Tables 2 and 3 for the SITC groups included in each product category.

^{2/} See Table 1 for a listing of Type I and Type II nontariff barriers.

^{3/} This is equivalent to \$12.4 billion measured in terms of 1986 prices.

TABLE NOTE: The actual 1986 Japanese NTB trade coverage ratios for total imports have been decomposed into trade coverage ratios for some of the more important types of nontariff barriers. These ratios (shown in parentheses) are as follows: tariff quotas (0.4); variable import levies (0.1); antidumping and countervailing duties (0.0); reference import prices (0.0); minimum import prices (0.0); "voluntary" price restraints (0.0); special import taxes (0.0); import authorization requirements (0.0); non-automatic import licensing (10.2); quantitative restrictions other than MFA or textile quotas (4.3); "voluntary" export restraints on volumes (0.0); MFA restrictions (0.0); other quantitative textile restrictions (0.0). Trade coverage ratios for other Type II NTBs were not calculated.

NTBs in 1986 while these measures had a negligible impact on fuels. In Japan, close to 100 per cent of food and chemical imports were affected by NTBs while no Type I or Type II restrictions were applied to iron and steel products. Tables 6 and 7 also show that major differences exist in the types of measures that are being employed in these two countries. In the United States the trade coverage ratio for hard core (Type I) NTBs is relatively close to the combined ratio for all Type I and II measures (11.9 as opposed to 16.8 per cent). However, in Japan the combined coverage ratio (36.9 per cent) is more than double that for the hard core restrictions. 19/

IV. Summary and Conclusions

While major concerns have been expressed about the spread of nontariff barriers in developed countries, the lack of empirical information on the dimensions of the increase has affected the related policy debates. Using inventories of nontariff barriers in developed countries compiled for 1966 and 1986 this study develops quantitative information on the major expansion of NTBs that occurred over this 20 year period. In 1966 nontariff barriers affected 25 per cent of developed countries imports, while in 1986 this share had increased to 48 per cent. These figures show that \$30 billion

19/ The reader should note that the so called Type II measures that appear to predominate in Japan's protectionist profile can be enforced in a way that their trade restrictive effect is more severe than that of Type I restrictions. Due to their nature, inventory tabulations of NTBs cannot provide any information on the trade effects of nontariff barriers, but merely document whether restrictions are or are not applied. It should be noted, however, that a heavy reliance on Type II restrictions to control trade can result in a major loss of transparency on the intent and effects of nontariff measures. It is also recognized that Japan's use of "informal" restrictions such as those on steel imports from Korea are not recorded in the UNCTAD Data Base. This underreporting would cause the Japanese NTB coverage and affected trade ratios to be downward biased.

of OECD countries' imports were affected by NTBs in 1966 (\$100 billion in 1986 prices) and \$356 billion was affected in 1986. The latter figure corresponded to a trade coverage of \$205 billion. In short, while a major effort was made in multilateral trade negotiations to reduce tariffs protectionism in the form of nontariff barriers greatly expanded, and may have even offset or exceeded the effects of liberalized import duties.

A second major point documented in this study is that the spread of nontariff barriers has been uneven across countries and industrial sectors. Overall, the increase in the share of trade affected by NTBs was highest in the EC (see Table 2 and Table 4), due in part to the extension of the Common Agricultural Policy to countries included in the ECs enlargement (as well as the extension of the CAP to include new products), while the United States and Japan register about the same level of (below average) NTB growth. However, a troubling point is that the U.S. and Japan have recently adopted new forms of nontariff barriers in agriculture (variable import levies) that have been extensively applied in the European Communities and Sweden. This study documents several other points concerning nontariff barriers. First, over 1966-86 quantitative evidence is developed on the magnitude of the (above average) spread of NTBs in sectors like textiles, clothing, foodstuffs and ferrous metals. Our data show that a major and extensive spread of NTBs occurred in all four sectors over 1966-86. For fuels, however, the share of affected imports declined for many countries over the 20 year period, with the removal of a U.S. surveillance system for petroleum imports in 1984 being a key development. Third, this study shows that the increased resort to discriminatory NTBs like "voluntary" export restraints (particularly in the U.S.) caused a significantly higher share of trade to be "affected" by nontariff barriers than suggested by commonly used trade coverage ratios.

This point should be noted in future analytical studies on the effects of nontariff barriers.

The longer-term empirical evidence developed in this study appears to have important implications for the functioning of the GATT and for the multilateral trade negotiations. Perhaps the key message is that existing GATT arrangements have been unable to stem a major increase in nontariff protection, despite the progress that has been made in lowering tariffs. As such, our empirical findings further increase the priorities associated with establishment of effective institutional procedures for dealing with nontariff barriers. Our findings concerning the extent that nontariff barriers have proliferated in some sectors (and countries) also increases the importance of establishing effective procedures for liberalization of these measures in multilateral trade negotiations like the Uruguay Round.

While the issue has not been addressed in this paper, it should be recognized that our findings have direct relevance for many major policy issues that affect both developed and developing countries. For example, most analyses of the international debt crisis recognize that expanded export opportunities are needed for developing countries to service and amortize existing obligations. The spread of nontariff barriers documented in this paper reduces such trading opportunities and the ability of developing countries to deal with their debt burdens. A second point is that most economists recognize that trade is an important element in growth strategies for developing countries and that "outward oriented" (trade related) growth policies have distinct benefits. The 1966-1986 spread on nontariff barriers has no doubt been a factor limiting the ability of developing countries to pursue such strategies, particularly for trade in labor intensive products like textiles, clothing and footwear in which they have a comparative

advantage. 20/ Finally, questions relating to the cost of nontariff protection are of particular importance. Many empirical studies have documented the fact that nontariff barriers involve major trade, employment and welfare costs for both developed and developing countries (see the survey provided by Laird and Yeats (1988)), and that more efficient (less onerous) measures are often available to achieve desired policy objects. These studies, coupled with the fact that extensive increases in nontariff protection were shown to occur over 1966-1986, indicate that major and economic and social costs were incurred due to the imposition of new trade barriers over this 20 year period.

20/ Over 1966-1987 developing country exports of manufactures grew from \$10 billion to \$193 billion in terms of 1986 prices. While this expansion is impressive, the relevant comparison for assessing the effects of protection would be between actual trade growth rates and potential trade that would occur in the absence of restrictions. A further point is that newly industrialized countries like Korea, Taiwan and Hong Kong have in the past been able to avoid the effects of new protection somewhat by shifting exports from restricted products (like textiles and clothing) to various labor intensive goods that were still traded relatively freely. Yeats (1988) provides empirical evidence on the magnitude and direction of this shift.

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